

What is claimed is:

1 1(currently amended). A method for ~~providing a fair exchange of~~
2 ~~user information by encoding said information with a hidden value~~ **fairly**
3 **exchanging a hidden value of a first user for a hidden value of a second**
4 **user, by a series of exchanges between the first user and the second**
5 **user leading up to completing said hidden values,** comprising the ~~step~~
6 **steps** of:
7 ~~selecting said hidden value as one of~~ **establishing a modulus and a**
8 **modular function known to the first user and known to the second user,**
9 **said modular function iteratively producing** a plurality of sequence values
10 **wherein each said sequence value is related, according to said modular**
11 **function, to a next previous sequence value, whereby conformance to**
12 **the modular function can be determined for adjacent ones of the plurality**
13 **of sequence values;**
14 **establishing a total number of iterations over which the sequence**
15 **values will be exchanged between the first user and the second user;**
16 ~~wherein difference values between adjacent ones of said sequence~~
17 ~~values are symmetrically distributed about one of said values of a known order~~
18 **iteratively exchanging the sequence values of the first and second**
19 **users, progressing in a predetermined order toward an end of said**
20 **sequence values;**
21 **completing the exchange provided that the total number of**
22 **iterations are completed, and terminating the exchange if the total**
23 **number of iterations are not completed.**

Claim 2 is canceled.

1 3(currently amended). The method ~~of as recited in~~ claim 1, wherein
2 said plurality of values are determined ~~in accordance with~~ **according to the**
3 **modular function by** a root value and a modulus value.

1 4(currently amended). The method ~~of as recited in~~ claim 1, wherein
2 said sequence values are determined **over a known order equal to the total**
3 **number of iterations, wherein each said sequence value is a result of the**
4 **modular function applied to a next previous sequence value, raised to a**
5 **power related to a difference in position between said sequence value**
6 **and a respective beginning and end of the order** ~~as: $12 (g^{2^2 i})_{i=0}^K \bmod (N); (g^{2((2^K+1)-(2^K-n))})_{n=1}^K \bmod (N)$; where K is a~~
7 ~~known order; N is a modulus value; and g is a root value.~~

Claim 5 is canceled.

1 6(currently amended). The method ~~of as recited in~~ claim 4, wherein
2 said modulus value is **a product of** ~~selected from the group consisting of Blum~~
3 ~~integers in the form of $N=p_{\text{sub.1}}p_{\text{sub.2}}$.~~

1 7(currently amended). The method ~~of as recited in~~ claim 6, wherein
2 said Blum integers **comprise related** ~~are selected from the group satisfying:~~
3 ~~$p_{\text{sub.1}}=2q_{\text{sub.1}}+1$; and $p_{\text{sub.2}}=2q_{\text{sub.2}}+1$ wherein $q_{\text{sub.1}}$ and $q_{\text{sub.2}}$~~
4 ~~are prime numbers.~~

Claim 8 is canceled.

1 9(currently amended). The method ~~of as recited in~~ claim 1, wherein
2 said hidden value is ~~selected as~~ a value immediately preceding a last value of
3 said sequence.

1 10(currently amended). The method ~~of as recited in~~ claim 1, wherein
2 said ~~order value of known order~~ **number of iterations** is at least 80.

Claims 11 – 22 are canceled.

1 23(currently amended). A system for exchanging user information over
2 a network comprising:

3 **at least one programmed** ~~[a]~~ ~~processor in communication with~~
4 **coupled to** a memory **and arranged for conducting a fair exchange of a**
5 **hidden value of a first user for a hidden value of a second user, by a**
6 **series of exchanges between the first user and the second user leading**
7 **up to completing said hidden values;**

8 **establishing a modulus and a modular function known to the first**
9 **user and known to the second user, said modular function iteratively**
10 **producing a plurality of sequence values wherein each said sequence**
11 **value is related, according to said modular function, to a next previous**
12 **sequence value, whereby conformance to the modular function can be**
13 **determined for adjacent ones of the plurality of sequence values;**

14 **establishing a total number of iterations over which the sequence**
15 **values will be exchanged between the first user and the second user,**

16 **iteratively exchanging the sequence values of the first and second**
17 **users, progressing toward an end of said sequence values;**

18 completing the exchange provided that the total number of
19 iterations are completed, and terminating the exchange if the total
20 number of iterations are not completed.

21 ~~; said processor operable to execute for: transmitting over said network~~
22 ~~said user information encoded in association with a hidden value selected as~~
23 ~~one of a plurality of values distributed in a sequence wherein a difference~~
24 ~~between adjacent ones of said values increases and decreases symmetrically~~
25 ~~about one of said values of a known order; transmitting over said network a~~
26 ~~first set of said values, and a last value in said sequence, wherein said values~~
27 ~~in said first set have increasing differences between adjacent ones of said~~
28 ~~values; and transmitting, individually said remaining values.~~

1 24(currently amended). The system of as recited in claim 23, further
2 comprising a further processor and wherein said processor and said
3 further processor exchange said sequence values on behalf of the first
4 and second users, respectively ~~is further operable to execute code for~~
5 ~~transmitting said remaining values in response to a received information.~~

1 25(currently amended). The system of as recited in claim 23, wherein
2 ~~said processor is further operable to execute code for transmitting said~~
3 ~~remaining values~~ is operable to effect the series of exchanges on a timed-
4 basis.

Claims 26-29 are canceled.